# United States Patent [19]

**Rosenkrantz et al.**

[11] **4,434,938**

[45] **Mar. 6, 1984**


[54] **AROMA SYSTEM**


[76] Inventors: **Evelyn S. Rosenkrantz; Edward Rosenkrantz,** both of 4915 Tyrone Ave., Sherman Oaks, Calif. 91403



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[22] Filed: **Apr. 5, 1982**

[51] **Int. Cl.**[3] ..... **B05B 15/00**

[52] **U.S. Cl.** ..... **239/274;** 239/289; 239/333

[58] **Field of Search** ..... 239/274, 289, 283, 329, 239/331, 333, 334; 222/385



[56] **References Cited**

U.S. PATENT DOCUMENTS

| | | | |
|---|---|---|---|
| 3,182,337 | 5/1965 | Price | 222/180 X |
| 3,500,771 | 3/1970 | Fischer et al. | 239/274 X |
| 4,056,228 | 11/1977 | Rosenkrantz et al. | 239/274 |

FOREIGN PATENT DOCUMENTS

| | | | |
|---|---|---|---|
| 551104 | 3/1923 | France | 222/385 |
| 688500 | 3/1953 | United Kingdom | 222/385 |



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*Assistant Examiner*—Mary McCarthy
*Attorney, Agent, or Firm*—Paul J. Sutton



[57] **ABSTRACT**

The present invention presents an aroma system for use with toilets and the like. In the present aroma system an improved pump has been combined with a container to provide a compact and trouble-free system. The pump is activated by the toilet handle when the toilet is flushed. Pump activation releases a preselected aroma which will mask the normal toilet odor. Provision is made for the removal of the pump and container combination from the toilet for servicing and refilling. Removal is accomplished by unfastening a special fastening device which is designed to be tamper proof.


**1 Claim, 5 Drawing Figures**

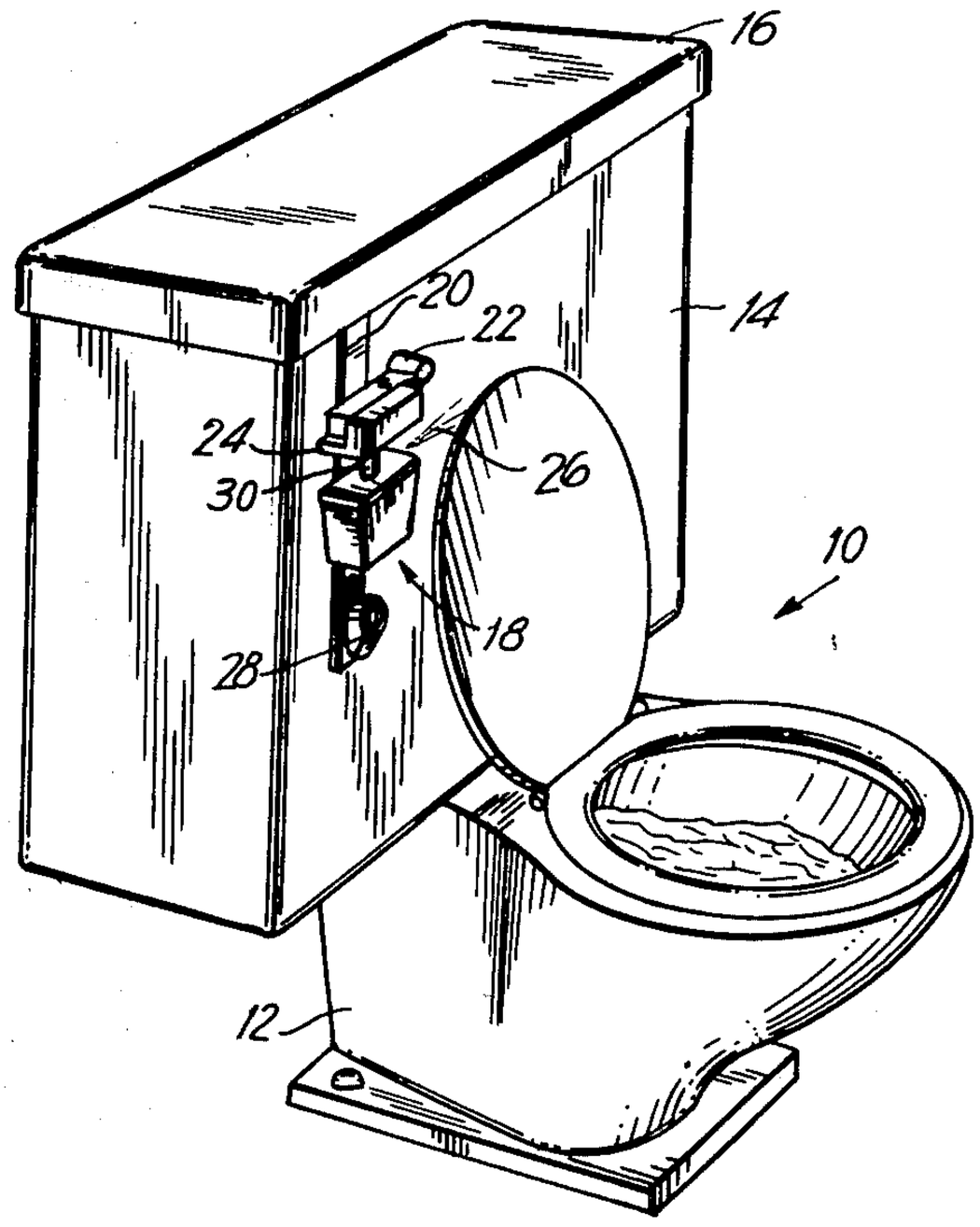
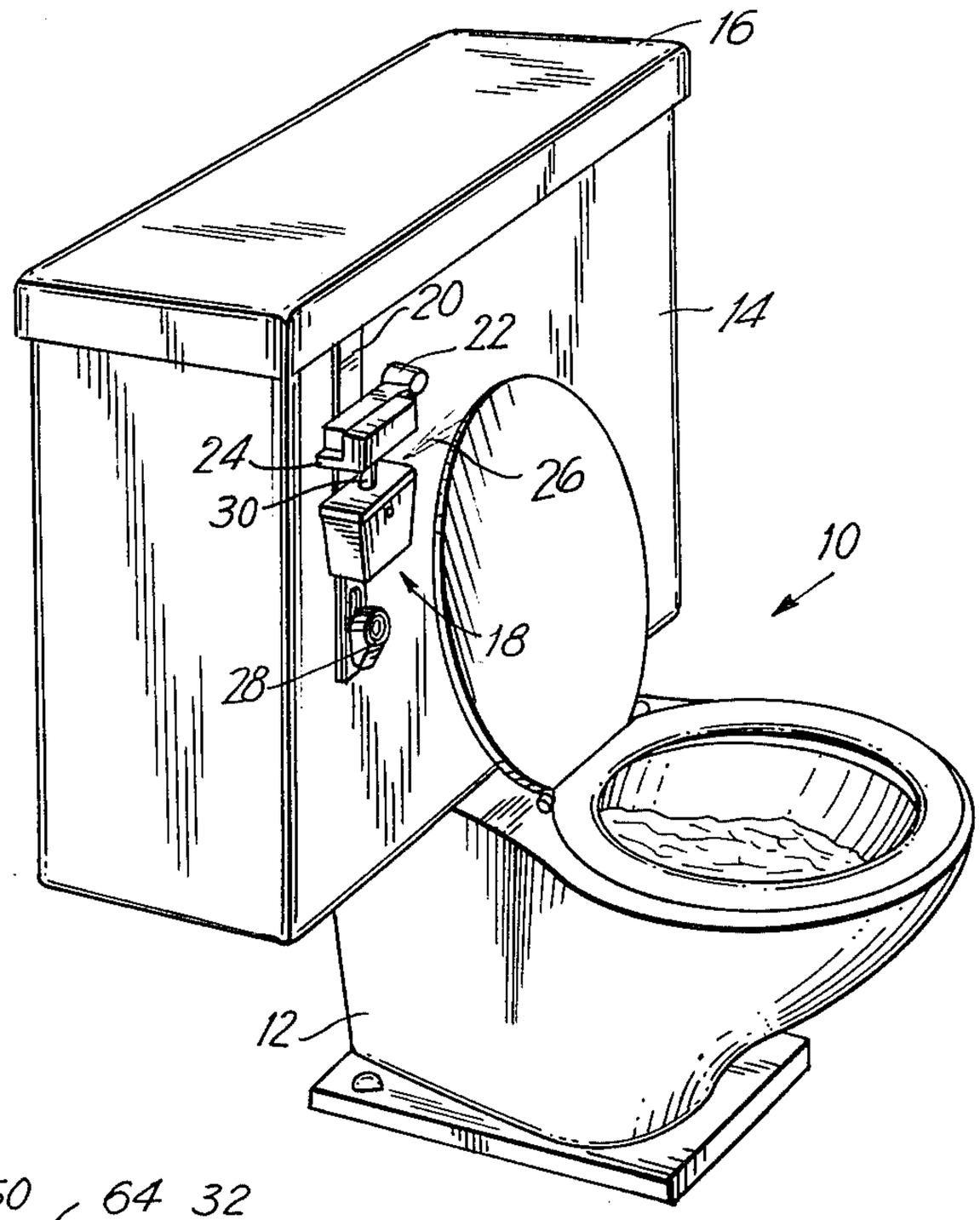


FIG. 1



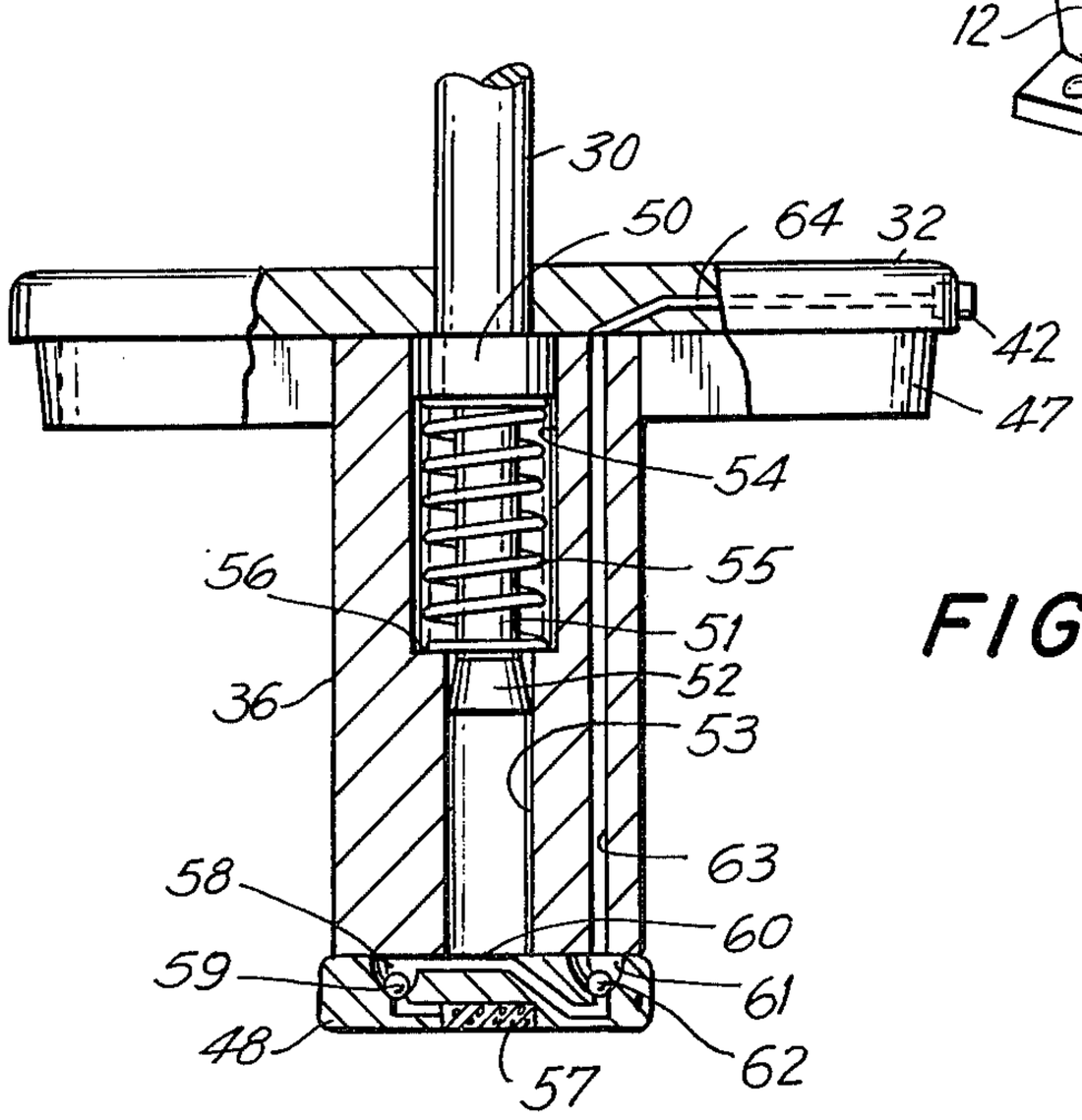




FIG. 4

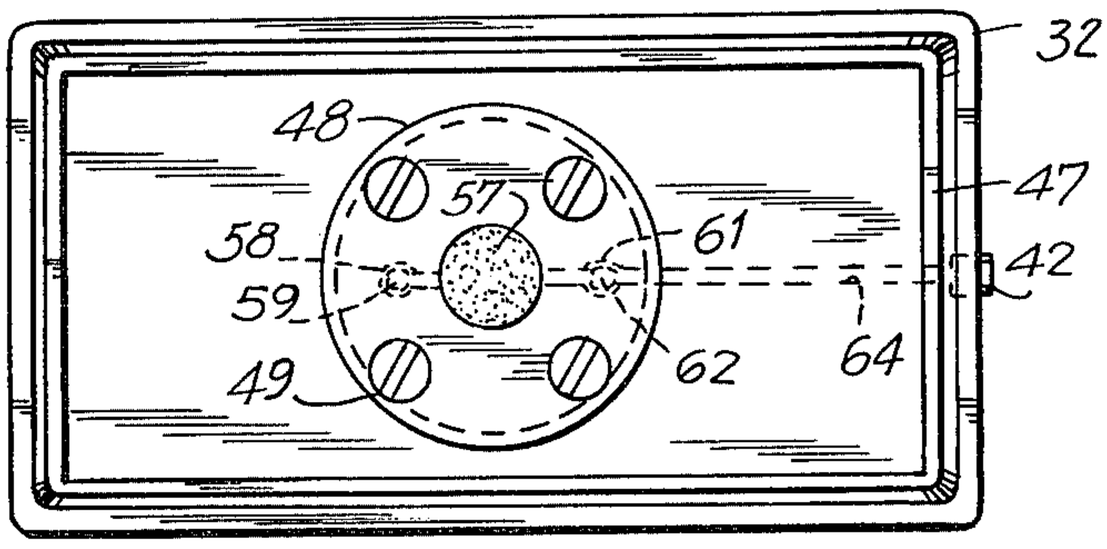



FIG. 5

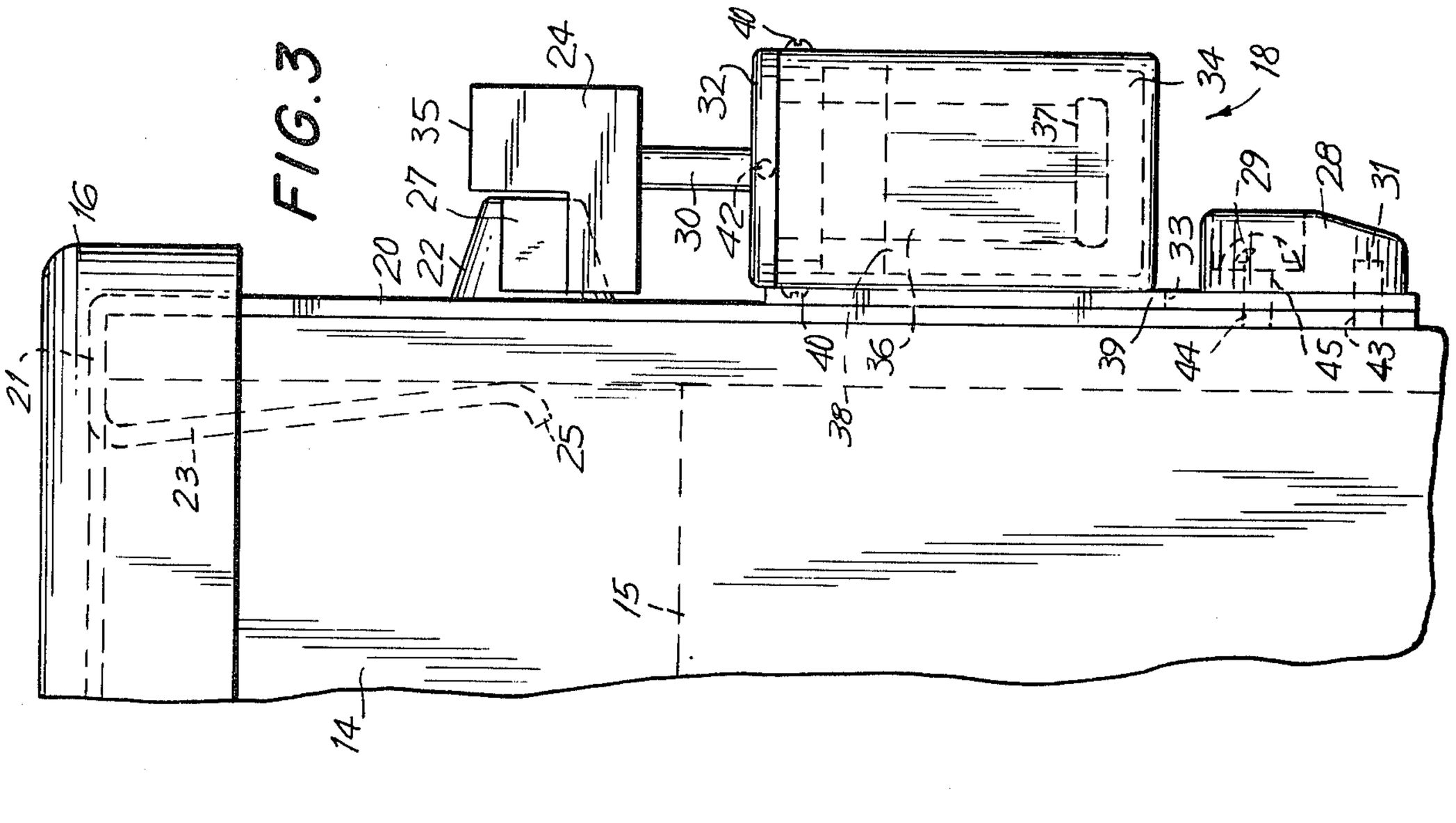


FIG. 3
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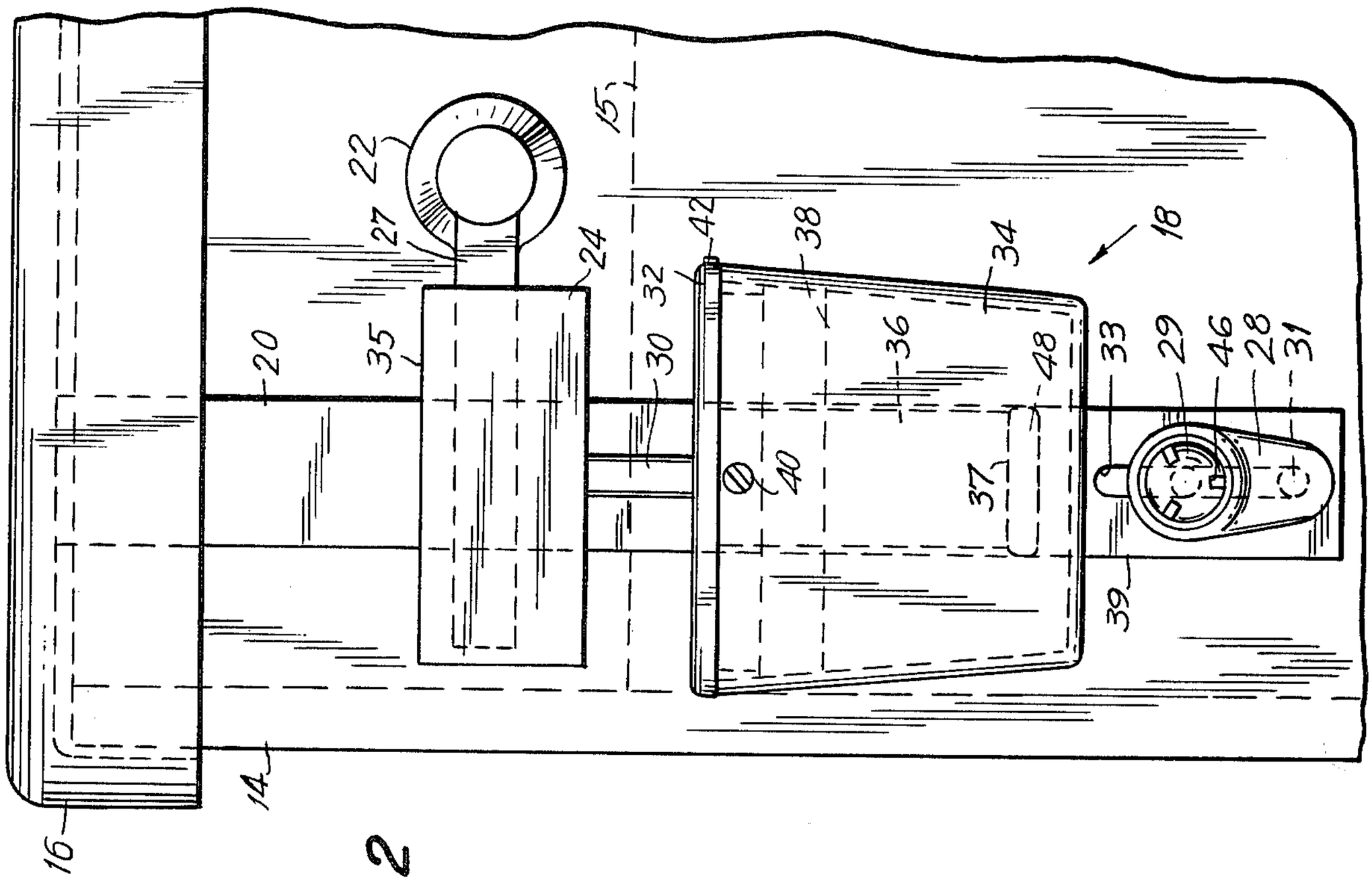
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FIG. 2

# AROMA SYSTEM

## BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to aroma dispensing devices in general. Particularly this invention is related to the combination of an aroma dispensing device and a toilet.

2. Description of the Prior Art

The following patents are prior art attempts to solve the problem which the present invention has solved.

U.S. Pat. No. 4,056,228 to E. S. Rosenkrantz et al. discloses an aroma system which is based upon the use of a spray nozzle assembly pump 44 which distributes the deodorant liquid 50. In an attempt to reduce part costs the pump assembly 44 is a commercially available spray nozzle which may also be used with cans and bottles. The use of pump assembly 44 required that a spray refiner 22 be used to direct the spray into the room. Of necessity spray refiner 22 consists of openings in the side wall 51 of flush box 20. The opening presented by spray refiner 22 also allows the deodorant liquid 50 to leak out of flush box 20 if the flush box 20 is improperly handled during or after removal from the toilet tank 12. Further, there is no disclosure for preventing unauthorized persons from removing or disabling the aroma system.

U.S. Pat. No. 2,586,266 to Santarelli discloses a sprayer which comprises a pump mechanism which may be used with a container 19 or removed from container 19 and used with a similar container. Santarelli's disclosure is directed to a device useful for spraying trees and plants as well as fire fighting purposes. It is conceivable that his pump may be used in an aroma system but there is no suggestion of this in his disclosure.

U.S. Pat. No. 2,795,799 to Dickerman discloses a device for activating aerosol containers. The aerosol released would then be useful for deodorizing purposes. Shown in his drawings are a supporting structure 26 attached to a toilet bowl rim 10. A seat 16 is arranged to operate an outer tubular member 28. As the outer tubular member 28 is operated it causes the valve 40 of aerosol spray container 42 to release deodorant spray. The deodorant spray is released as the toilet seat 16 is lifted. The attachment of Dickerman's device to the rim 10 of the toilet bowl presents a problem when cleaning the interior portion of the toilet bowl. Dickerman's hanger 22 will provide places for dirt to accumulate as the interior of the toilet bowl is cleaned. Further, the proximity of the spray valve 40 to the seat 16 may cause a person using the invention to receive the deodorant spray on his or her clothing causing the clothing to soil.

U.S. Pat. No. 3,182,337 to N. W. Price as well as U. S. Pat. No. 3,068,492 to N. W. Price both describe different bracket designs for holding deodorant aerosol cans onto a toilet tank wall 1. A mechanism is shown for holding the aerosol cans onto a toilet tank wall 1. The mechanism shown for holding the aerosol cans 3 and 12 require considerable skill to adjust for proper operation and to readjust after replacement of an aerosol can. Further, the arm mechanism 9 and 14 which makes contact with the operating lever 2 and 3 of the tank is not enclosed and therefore may be damaged by catching in the clothing of persons operating the above described systems.

German Pat. No. 954013 to Ratingen describes an enclosure for use in a room having toilets and the like.



The enclosure disclosure by Ratingen houses a pump 5 and a reservoir 6. Manual operation of ball 10 will cause expulsion of the deodorant. The deodorant release in the Ratingen disclosure is not automatically performed by flushing a toilet but must be manually performed as required by a person within the room having toilets.

British Pat. No. 1,021,586 to Owensmith et al. discloses an apparatus for holding an aerosol dispenser can 4 and having a solenoid 2 disposed in line with valve 22 so that operation of solenoid 2 will cause dispenser can 4 to release the aerosol contained within. The apparatus may generally be disposed about a room and requires a source of current to operate the solenoid 2. Owensmith's disclosure suggests the use of a clock operated timer to periodically release the aerosol. The disclosure by Owensmith et al. does not consider the release of the aerosol at the time needed, namely after use of a toilet or the like. Rather, Owensmith et al. consider the release of the aerosol on a period basis with a consequent waste of aerosol deodorant since the deodorant is not needed at all times.

In summary, the prior art represented by Rosenkrantz et al. presents a relatively complicated aroma system based upon a commercially available pump assembly. The present invention is a simpler aroma system with a fewer moving parts together with a unique pump and enclosed container. The present invention further discloses a means for preventing unauthorized tampering which is not considered in any of the prior art.

Santarelli directs his disclosure to spraying trees and shrubs as well as fires and does not attempt to solve the problem of deodorizing a toilet.

Dickerman discloses the release of a deodorant at toilet seat level and attaches his device to the toilet bowl which provides difficulties when trying to clean the bowl. Further, his dispenser could conceivably wet a person or wet and soil a persons clothing which is not possible with the present invention.

The two N. W. Price patents are similar in that they both require great skill to adjust before and after changing aerosol cans. Further, the mechanisms described by Price are not protected and can easily catch in clothing. The present invention does not require such skillful adjustment and is completely enclosed.

The patent to Ratingen describes an aerosol dispensing device which is manually operated at some time after or before use of a toilet. The present invention is operable at the same instant that the toilet is flushed and therefore requires only one action on the part of the person doing the flushing.

The patent to Owensmith et al. describes an apparatus for periodically dispensing an aerosol under direction of timing mechanism. The apparatus of Owensmith et al. washes the aerosol and requires an electrical timing source. Use of the electrical operation would prove hazardous when applied to a toilet. The present invention provides for a safe, simple and reliable device for dispensing aerosols and is economical to operate because of the release of the aerosol only when flushing.

## BRIEF SUMMARY OF THE INVENTION

The improved aroma system of the present invention is a compact pump and container combination which is designed to be locked to the tank of a toilet by means of bracket. The bracket is itself locked to the toilet tank thereby preventing unauthorized removal of the aroma system. The pump portion of the aroma system is placed

in a position which enables it to be activated by the same handle which is used to flush the toilet. The exit nozzle of the aroma system is placed so that it releases the deodorant in an area where it will be effective.

An object of the present invention is to present an improved aroma system.

Another object is to provide a compact combined pump and container.

Still another object is to provide a non-clogging efficient pump.

Still yet another object is to provide a tamper-proof aroma system.

For a better understanding of the invention, together with other details and features thereof, reference is made to the following description taken in connection with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** improved aroma system attached to toilet tank;

FIG. **2** fragmentary front view of improved aroma system and toilet tank;

FIG. **3** fragmentary side view of improved aroma system and toilet tank;

FIG. **4** partial cross-section of aroma system cover;

FIG. **5** partial bottom view of aroma system cover.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. **1** illustrates an improved aroma system attached to a toilet tank, generally designated **10**. Shown here is a toilet bowl **12** having a tank attached in the normal manner. Sitting on the top of tank **14** is a tank cover **16** which has been attached to the tank **14** in a manner (now shown) so as to prevent unauthorized removal. A hanger bracket **20** is shown placed over the front wall of the tank **14**. The aroma system generally designated, **18** is attached to the hanger bracket **20** by a lock mechanism **28**. It can be seen that a pump handle **24** is abuting a tank handle **22** so that the pump handle **24** and the tank handle **22** are operated together. A spray of deodorant **26** is shown issuing from the side of the improved aroma system **18** so as to indicate the area to be deodorized.

FIGS. **2** and **3** show a detailed view of the improved aroma system **18** attached to the toilet tank **12**. Aroma system **18** is detachably affixed to the hanger bracket **20** which is shown hooked over the front face of the toilet tank **14**. Hanger bracket **20** fits between the inside of toilet tank cover **16** and the lip of toilet tank **14**. The tank **14** is shown with tank water **15** which is the level of water for flushing the toilet. Additionally the tank handle **22** is shown with a straight portion **27** in abutment with the pump handle **24**. A top portion **35** of pump handle **24** is approximately at the same level as the top of the straight portion **27** of the tank handle **22**. A pump plunger **30** is seen protruding from a system cover **32**. Attached to the system cover **32** is a pump body **36** having a bottom **37** immersed below a deodorant level. The deodorant **38** is contained within a system tank **34** to which the system cover **32** is attached by a pair of fasteners **40**. A support bracket **39** (best seen in FIG. **3**) is attached (by means not shown) to the system tank **34**. The support bracket **39** is adjustably attached to the hanger bracket **20**. A slot **33** in the support bracket **39** permits adjustment of the abutment between the pump handle **24** and the tank handle **22**. A locking mechanism **28** is comprised of a somewhat oblong body having a lock screw **29** at its upper end and a lock pin **31** at its lower end. The pin **31** is attached to locking mechanism **28** and fits into a clearance hole **43** (best seen in FIG. **3**) found in the hanger bracket **20**. The lock screw **29** has a threaded portion **45** which engages a threaded hole **44** in the hanger bracket **20**. The lock screw **29** includes a set of three partial slots **46** which are engaged by a special tool (not shown) to prevent unauthorized adjustments.

FIG. **3** shows a few additional details not shown in FIG. **2** and these will be named. The hanger bracket **20** can be seen to have a bend **21** which permits it to rest on the lip of toilet tank **14**. A reverse portion **23** is angled toward the wall of the toilet tank **14** and clamps the hanger bracket **20** to the wall of the tank **14**. A lip portion **25** allows the hanger bracket **20** to be removed if required without damaging the toilet tank **14**. Also shown in both FIG. **2** and FIG. **3** is a spray nozzle **42** which directs the deodorant spray **26** as shown in FIG. **1**.

FIG. **4** shows a partial cross-section of the system cover **32**. Here can be seen a flange **47** which fits inside the system tank **34**. The pump body **36** is shown abutting the inside of the system cover **32** at one end and having an end cap **48** at the other end. The end cap **48**, the pump body **36**, and the system cover **32**, are held together by a set of screws, **49**, best seen in FIG. **5**. The pump plunger **30** fits slidingly through a hold in the system cover **32**. The pump plunger is prevented from passing completely through the hole in cover **32** by a stop ridge **50**. The stop ridge **50** then abuts a reduced diameter portion **51** which has a teflow seal **52** affixed. Teflow seal **52** is tapered as shown so that its lower portion is compressed when it fits into a bore **53** in the lower portion of the pump body **36**. The upper portion of teflow seal **52** is tapered to a diameter less than that of its lower portion of the seal **52** and the reduced diameter portion **51** will clear the bore **53**. The upper portion of pump body **36** has an enlarged bore **54** which houses a spring **55**. Spring **55** bears against a ridge wall **56** and the stop ridge **50**, pushing them apart when spring **55** is compressed.

The end cap **48** is shown in section in FIG. **4** in order to show the pump valving. An intake port **57** is shown. The port **57** is filled with a porous plug which serves to filter the deodorant liquid in which it is immersed. Intake port **57** opens to a first valve chamber **58** having a first ball **59**. The ball **59** rests on the bottom of first valve chamber **58** and prevents the passage of deodorant fluid in that position. The upper portion of first valve chamber **58** opens to a central opening **60** which provides access to the pump formed by teflow seal **52** and bore **53**. The central opening **60** is also connected by a passageway to a second valve chamber **61**. Within the second valve chamber **61** is a second ball **62** resting on the bottom of second valve chamber **61**. When the second ball **62** is resting on the bottom of second valve chamber **61** the passage of deodorant fluid is prevented. Second chamber **61** has its top portion open to a small bore **63** drilled in pump body **36** connecting to a series of passageway **64** formed into system cover **32**. The series of passageways **64** opens to the spray nozzle **42** formed of a plastic material.

Operation of the improved aroma system **18** is as follows. The hanger bracket **20** is slipped onto a toilet tank wall as shown in FIG. **1**. The system tank **34** is partially filled with deodorant liquid and assembled to the system cover **32**. The improved aroma system **18** is attached to the hanger bracket **20** by the lock screw **29**

by using an appropriate tool. The system **18** may be slidably moved up and down until the straight portion **27** of the tank handle **22** is abuting the pump handle **24**. In assembling the system cover **32** and the system tank **34** care must be taken to point the spray nozzle **42** toward the toilet bowl **12** and that the fasteners **40** have been placed. With the aforementioned preparatory work done, a simple flushing of the toilet **10** will cause the pump handle **24** to be depressed resulting in the spray of deodorant **26**.

Operation of the spray pump mechanism is as follows. Intake port **57** is immersed in the deodorant liquid **38** as seen in FIGS. **2** and **3** and initially there is no liquid **38** in the pump formed by the teflow seal **52** and the bore **53**. When the toilet **10** is first flushed, pump handle **24** is pushed toward the system cover **32**. The movement of pump handle **24** is pushed toward the system cover **32**. The movement of pump handle **24** causes the pump plunger **30** to moves downward causing the spring **55** to compress. As the pump plunger **30** moves downward it causes the flow seal **52** to move into the bore **53** and whatever air is in the pump chamber pushes against both the first ball **59** and the second ball **62**. The compressed air pushes on the first ball **59** causing it to rest more heavily on the bottom of first valve chamber **58** and causing the passage to remain sealed. The compressed air pressing against the second ball **62** does so from the bottom of the second valve chamber **61** and eventually overcomes the weight of the second ball, unsealing the second valve chamber **61** and allowing air to escape through the connecting passages to spray orifices **42**. When the tank handle **22** is released the compressed spring **55** forces both the tank handle **22** and the pump handle **24** back to their original position. As the teflow seal **52** returns to its original position it lowers the pressure in the pump and atmospheric pressure on the surface of the deodorant liquid **38** forces it into the intake port **57** and causes it to lift the first ball **59**. The deodorant liquid **38** now fills the pump and is ready to be released on the next flushing.

The next flushing takes place when the tank handle **22** is again activated after use of the toilet **10**. Activation of the tank handle **22** causes the pump handle **24**, attached to one end of the pump plunger **30**, to move the pump plunger **30** causing the teflow seal **52**, which is attached to the other end of the pump plunger **30**, to move along the bore **53** toward the end cap **48**. The deodorant **38** which filled the pump formed by teflow seal **52** and the bore **53** is now forced out of the pump area as the pump volume is reduced by the movement of the teflow seal **52**. The deodorant fluid **38** is forced into both passages which lead from the central opening **60** to the first valve chamber **58** and to the second valve chamber **61**. The first ball **59** and the second ball **62** are sealing their respective valve chambers because of the weight of the ball **59** and **62**. The valve chambers **58** and **61** are designed to be sealded when only the force of gravity acts upon the first ball **59** and the second ball **62**. Consequently as the deodorant fluid **38** is forced out of the pump passage, its force is communicated to the first ball **59** and the second ball **62**. The force of the deodorant **38** on the first ball **59** is in a direction such that the deodorant force aids the force of gravity acting on the first ball **59** to help maintain the first valve chamber **58** in the sealed condition. On the other hand, the force of the deodorant fluid **38** on the second ball **62** is in a direction such that the deodorant force acts in a direction counter to the force of gravity acting on second ball **62**. The weight of second ball **62** serves to keep the second valve chamber **61** in the sealed condition until the force of the deodorant fluid **38** overcomes the weight of the second ball **62**. When this happens the deodorant **38** enters the small bore **63** in the pump body **36** and thereby also enters the series of passageway **64** in the system cover **32**. The deodorant fluid **38** is then expelled through the spray nozzle **42**, shown in FIG. **1**, as the spray of deodorant **26**.

While the present invention has been disclosed in connection with the preferred embodiment thereof, it should be understood that there may be other embodiments which fall within the spirit and scope of the invention as defined by the following claims.

What is claimed is:

**1**. An improved aroma emitting device for cooperative use with a toilet handle, comprising in combination:

a housing consisting of,

a refillable fluid reservoir having

a cover detachably fastened to said reservoir, said cover having

a pump means depending from said cover and communicating with said fluid reservoir for generating

a mist proximate said cover;

activating means extending from said cover and having

a handle attached thereto for engagement with said toilet handle so as to generate said mist when said toilet handle is activated;

said housing having

a support bracket attached to said refillable reservoir portion thereof for adjustable engagement with

a hanger bracket attached to

a toilet tank wall and proximate said toilet handle, said support bracket being slidably detachably affixed to said hanger bracket by

a lock mechanism, said pump means comprised of

a valve member affixed to

a pump body, said valve member being remote from said cover and extending below the level of said fluid reservoir, said pump body having

a longitudinal bore there through and said bore having

a first diameter portion and a second diameter portion, said first diameter portion abuting said valve chamber and said second diameter portion abuting said cover, said longitudinal bore further having

a shoulder at the mid portion of said pump body, contained within said longitudinal bore is said activating means comprised of

a plunger having

a collar at its mid portion,

a third diameter portion extend from said cover, and

a fourth diameter housed within said longitudinal bore, and having

a pump seal attached to said fourth diameter, said pump seal being larger in diameter than said first diameter portion and slidingly engaged with said first diameter;

a spring coaxial with said fourth diameter and housed within said second diameter, abutting said shoulder and said collar so that when said activating means is operated said spring is compressed, a said valve chamber having

a first ball valve, and

a second, non biased ball valve,

an intake port in communication with said fluid reservoir, and

a common port in communication with said first diameter portion of said longitudinal bore said intake port having

a filter element therein for the removal of particulate matter from said fluid entering said pump means;

a first passageway serves to connect said intake port with said first ball valve, and



a second passageway serves to connect said first ball valve with said common port;

a third passageway serves to connect said second ball valve with said common port;

a fourth passageway in said pump body serves to connect said second ball valve with

a fifth passageway in said cover which commmunicates with

a spray nozzle affixed to said cover whereby activation of said toilet handle causes said fluid to be expelled from said spray nozzle.

* * * * *